

TECHNICAL REVIEW DOCUMENT
for
RENEWAL of OPERATING PERMIT 95OPKC052

Tri-State Generation and Transmission Association, Inc. – Burlington Station
Kit Carson County
Source ID 0630003

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November 2001
Revised December 4, 2001 and January 11, 2002

I. Purpose:

This document will establish the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewal operating permit proposed for this site. The original Operating Permit was issued May 30, 1997, and expires on May 30, 2002. This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted May 11, 2001, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.cdphe.state.co.us/ap/Titlev.html>.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

The word “credible” as it is used in the term “credible evidence” shall be applied under the provisions of the permit as defined by Colorado and Federal Rules of Evidence.

II. Description of Source

This facility generates electricity primarily to service peak electrical load demands and is classified under the Standard Industrial Classification 4911. The significant emission units consist of two General Electric simple cycle combustion turbines and generators, each capable of generating 52 megawatts of electricity under nominal conditions. The turbines are fueled with No. 2 distillate blend oil and the fuel is stored in two identical tanks each capable of holding 2.8 million gallons. Based on the information available to the Division and provided by the applicant, it appears that no modifications to these significant emission units has occurred since the original issuance of the operating permit. In addition, the list of insignificant activities has not changed since the original permit issuance.

Note that none of the emission units are equipped with control devices and therefore the Compliance Assurance Monitoring (CAM) requirements do not apply to any of the emission units at this facility.

The facility is located approximately 4 miles northeast of the Burlington in Kit Carson County. This facility is located in an area that has been designated as attainment for all criteria pollutants. There are no federal class I designated areas within 100 km. Kansas and Nebraska are located within 50 miles of the facility and are therefore affected states.

The summary of emissions that was presented in the Technical Review Document (TRD) for the original permit issuance has been modified to update actual emissions and to more appropriately identify the potential to emit (PTE). The PTE in the original TRD was based on emission factors and 8,760 hours per year of operation at the maximum design rate and did not take into account any regulatory emission limits, such as the Reg 1 PM and SO₂ emission limitations. In addition, since there has been a change in emission factors, for those pollutants whose PTE is based on emission factors, the PTE has been adjusted to reflect the updated emission factors. Emissions (in tons per year) at the facility are as follows:

Pollutant	Potential to Emit	Actual Emissions
PM ¹	510	21.4
PM ₁₀	510	21.4
SO ₂ ²	4,080	48.4
NO _x	4,488	244.6
CO ³	16.8	16.8
VOC ⁴	2.1	6

¹PTE is based on 0.10 lbs/mmBtu x design heat rate x 8760 hrs/yr, for each turbine.

²PTE is based on 1.5 lbs/mmBtu x design heat rate x 8760 hrs/yr, for each turbine.

³Actual emissions are based on old AP-42 emission factors which are more conservative than the revised factors, therefore actual emissions appear to equal potential but this is not the case.

⁴Actual emissions are based on an old AP-42 emissions factor for TOC (as methane). The revised AP-42 emission factor is for VOC (does not include methane) and is much less conservative than the previous AP-42 emission factor for TOC that was used to calculate actual emissions.

Potential to emit for the turbines is based on the information identified in the table and the maximum hourly fuel consumption rate, AP-42 emission factors and 8760 hrs/yr of operation. Note that potential to emit for the tanks is minimal compared to emissions from the turbines. Therefore, the potential to emit from the tanks is not included in the above table. Actual emissions are based on the Division's 2000 inventory.

III. Discussion of Modifications Made

Source Requested Modifications

The source did not request any changes to the permit in their renewal application.

Other Modifications

Although the source did not request any changes to their permit in their renewal application, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments, to the Burlington Renewal Operating Permit. These changes are as follows:

Page following Cover Page

The dates for monitoring and compliance periods will be clarified, i.e. changed "January - June" to "January 1 - June 30".

Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

The citation (above “issued to” and “plant site location”) on the page following the cover page provides the incorrect title for the state act. The title will be changed from “Colorado Air Quality Control Act” to “Colorado Air Pollution Prevention and Control Act”. In addition, the dates were removed from the citation.

Corrected the Responsible Official’s title and the Permit Contact’s phone number.

Section I - General Activities and Summary

The language in Condition 1.3 was changed based on comments made by EPA on other Operating Permits.

Revised the language in Condition 3.1 to more appropriately address the PSD status of the source. In addition, based on comments made by EPA on another permit the following sentence was removed “Modifications up to this point in time have not triggered significance levels which would bring about PSD review.”

Based on comments made by EPA on another operating permit, the phrase “Based on the information provided by the applicant” was added to the beginning of Condition 4.1.

Clarified in Section 5 (table) that the storage tanks each have a capacity of 2.8 million gallons.

Added a “new” Section 5 for compliance assurance monitoring (CAM), note that no emission units are subject to CAM.

Section II - Specific Permit Terms

Emission Factors

The permit was revised to include updated AP-42 emission factors. For the turbines emission factors are from AP-42, Section 3.1 (April 2000), Tables 3.1-1 (for uncontrolled distillate oil fired turbines), and 3.1-2a (for distillate oil-fired turbines). The following emission factors will be included in the permit:

Pollutant	Emission Factor (lbs/mmBtu)
PM	0.012
PM ₁₀	0.012
SO ₂	1.01S ¹
NO _x	0.88
CO	3.3 x 10 ⁻³
VOC	4.1 x 10 ⁻⁴

¹S = weight percent sulfur in fuel

Note that the original permit did not require that emissions for PM₁₀ be calculated or reported. The turbines are subject to APEN reporting requirements for PM₁₀, as well as PM. Therefore, the emission factors for PM₁₀ have been included in the draft renewal permit. In addition, the original permit identified an emission factor for TOC (as methane) and required that TOC emissions be calculated. The previous version of AP-42 did not identify any emission factor for VOC, however, the revised version does. Since methane is not considered a VOC, the renewal permit will include the VOC emission factor, rather than the TOC emission factor.

Section II.1: Turbines

- The current AP-42 emission factor for PM is 0.012 lbs/mmBtu and this is for total (filterable and condensible) particulate matter. The previous AP-42 emission factor, which is currently in the existing permit is 0.061 lbs/mmBtu and this is also for total (filterable and condensible) particulate matter. Both the current and previous AP-42 emission factors predict compliance with the Reg 1 PM limitation. Therefore, the Division believes that the monitoring provided in the existing permit (Condition 1.1) is not necessary to demonstrate compliance (monthly calculations of PM emissions) and does not really address the PM emission limitation. The Division considers that, in the absence of credible evidence to the contrary, compliance with the PM limitation is presumed whenever No. 2 fuel oil is used as fuel in the turbines. Note that the Division does still consider that PM emissions should be calculated for the purposes of APEN reporting and payment of fees, however, because the turbines are not subject to any annual emission limitations, only annual emission calculations are necessary. Note that the annual emission calculations shall be included in Condition 1.3 of this permit.
- The current permit requires that lbs of SO₂ emissions be calculated monthly and that the calculated lbs of SO₂ emissions be divided by the total heat input to the turbine each month (Condition 1.2) to monitor compliance with the Reg 1 SO₂ limit of 0.8 lbs/mmBtu. The emission factor identified in the current permit is from EPA's FIRE, Version 5.0 (EPA-454/R-95-012, dated August 1995), SCC 2-01-001-02. The emission factor relies on the sulfur content of the fuel and is in units of lbs/10³ gal. Based on the emission factor in the current permit, as long as the sulfur content of the fuel is less than 0.5 weight percent and the heat content is greater than 88,125 Btu/gal, then the turbines are in compliance with the 0.8 lbs/mmBtu SO₂ emission limit. Typically, off-road diesel fuel (No. 2 fuel oil) has a sulfur content no greater than 0.5 weight percent and generally, the heat content of No. 2 fuel oil is 140,000 Btu/gal. Therefore, the Division considers that in the absence of credible evidence to the contrary, the turbines are in compliance with the Reg 1 SO₂ emission limit and the language in the permit will be changed to reflect that.

It should also be noted that the new AP-42 emission factor is already in units of lbs/mmBtu and also relies on the weight percent sulfur in the fuel.

With the new AP-42 emission factor, as long as the sulfur content of the fuel does not exceed 0.79 weight percent, the turbines are in compliance with the Reg 1 SO₂ limit.

Finally, as discussed for PM above, the monthly emission calculation is not necessary. Typically the Division only requires a monthly emission calculation for units that have an annual emission limitation. The Division considers that annual emission calculations are adequate for purposes of APEN reporting and payment of fees. Note that the requirement to calculate annual emissions will be included in Condition 1.3 of this permit.

- A condition was added to record annual fuel consumption (new Condition 1.4). The permit previously required (under Conditions 1.1 and 1.2) the source to determine fuel burned on a monthly basis.
- On other permits, the EPA has objected to the use of the term “normal” and “special conditions” for opacity, since EPA considers that “startup” is a normal operating condition and not a “special condition” for an emission unit. So the 20 % opacity language (Condition 1.5) will be rewritten to remove references to “normal” and the standard will be rewritten to more closely resemble the language in Regulation No. 1. In addition, the sentence “Failure to conduct readings in accordance with this provision will be considered a violation of the Operating Permit” will be removed because it is not necessary. Failure to follow any condition in the operating permit can be considered a violation of the operating permit.
- Colorado Regulation No. 1, Section II.A.4 (30% opacity requirement) identifies other specific operating activities other than startup, although only startup was included in the original operating permit. The specific activities under which the 30% opacity standard applies are: building a new fire, cleaning of fire boxes, soot blowing, startup, any process modification, or adjustment or occasional cleaning of control equipment. The permit has been changed to include all the specific activities under which the 30% opacity limitation applies.
- The current permit requires that fuel be sampled annually or every 2400 hrs of operation whichever comes first (Condition 1.6). Since the sulfur and heat content of the fuel are only used for emission calculations, annual sampling is sufficient. Therefore the permit will be changed to require annual fuel sampling.
- Condition 1.6 of the permit identifies specific ASTM methods to be used for fuel sampling and analysis. Since ASTM methods may be revised or replaced, the permit will be changed to specify that the appropriate ASTM methods, or equivalent, if approved by the Division in advance shall be

used to determine the sulfur and heat content of the fuel. In addition, the Division will remove the requirement to sample for and determine the ash content and specific gravity of the fuel, since these parameters are not used in the emission calculations.

Section II.2: Tanks

- EPA's TANKS emission estimation program has been revised and there is currently a version 4.0. Therefore, the permit will be changed to require that TANKS version 4.0 or higher be used to calculate emissions from working and breathing losses.
- In addition, the permit specifies that a revised APEN shall be submitted in accordance with Colorado Regulation No. 3, Part A. Revised APENs are required whenever actual annual emissions exceed an APEN significance level or every five years. According to the Technical Review Document for the original permit, actual emissions from the tanks do not exceed APEN de minimis levels and so no APEN has been required. Therefore, the language will be changed to specify that an APEN will be submitted in accordance with Colorado Regulation No. 3, Part A, if necessary.

Section III – Permit Shield

- The title for Section 1 was changed from "Specific Conditions" to "Specific Non-Applicable Requirements" and a new section 3 was added for subsumed (streamlined) conditions. Note that there were no streamlined conditions.
- Based on comments made by EPA on another permit, the following statement was added after the introductory sentence in Section 1 "This shield does not protect the source from any violations that occurred prior to or at the time of permit issuance".
- In addition, the following phrase "In addition, this shield does not protect the source from any violations that occur as a result of any modification or reconstruction on which construction commenced prior to permit issuance" was added to the end of the introductory paragraph in Section 1.
- Based on comments made by EPA on another permit, the following phrase was added to the beginning of the introductory sentence "Based upon the information available to the Division and supplied by the applicant."
- The applicable requirement citation(s) for the PSD requirements were changed. The citation for 40 CFR 52.21(i)(4)(i) is the exemption this facility falls under and should not be cited. The 40 CFR 52.343(b) citation was replaced with "40 CFR 52.21 (Colorado Regulation No. 3, Part B,

Section IV.D.3)” to reflect current practices on citing the PSD regulations in the permit shield.

- Corrected the citation for the exemption (from Reg 7, Section IV) for the type of fuel used at this facility (was cited as “Section VI.B.I.a.(ii)” should be “Section IV.B.1.a.(ii)”).

Section IV - General Conditions

- Added an “and” between the Reg 3 and C.R.S. citations in General Condition 3 (compliance requirements).
- The language contained in the Common Provisions Regulation regarding upsets was included in General Condition 4.
- The citation in General Condition 7 (fees) was changed to cite the Colorado Revised Statute. In addition, any specific identification of a fee (i.e. \$100 APEN fee) or citation of Reg 3 was removed and replaced with the language “...in accordance with the provisions of C.R.S. [appropriate citation].”
- The citation in General Condition 13 (odor) was corrected. In addition, the phrase “Part A” was added to the citation for Condition 13 (odor). Colorado Regulation No. 2 was revised and a Part B was added to address swine operations. Colorado Regulation No. 2, Part B should not be included as a general condition in the operating permit.
- The reference in Condition 28 (volatile organic compounds) to Regulation No. 7, Section III.C.3 was corrected to Regulation No. 7, Section VIII.C.3.
- Added the requirements in Colorado Regulation No. 7, Section V.B (disposal of volatile organic compounds) to General Condition 28.

Appendices

- First Page of Appendices – The phrase “except as otherwise provided in the permit” was added after the word “enforceable” in the disclaimer at the request of EPA.
- Appendix B and C were replaced with revised Appendices.
- The EPA addresses in Appendix D were corrected.